

REMARKS

Claims 25, 40, 47, and 52 have been amended. Claims 27, 35-38, and 53-55 have been cancelled. Claims 1-24 were previously canceled. Accordingly, claims are currently pending in this application.

Claims 25, 26, 28, 30, 31, and 47-50 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Yoon et al., US Patent No. 6,479,887 ("Yoon"). This rejection is respectfully traversed.

The claimed invention relates to semiconductor packaging. Accordingly, amended independent claim 25 recites a "semiconductor device package" comprising, *inter alia*, "a metal layer having diced edges, said metal layer mounted on a side of said semiconductor device opposite said dielectric substrate." Amended independent claim 47 recites a "semiconductor structure" comprising, *inter alia*, "a first metal layer attached to a side of said semiconductor wafer opposite said ball grid arrays."

Yoon does not disclose any of the above noted limitations of amended independent claims 25 and 47. The Office Action refers to item 12 of Fig. 13 as disclosing the claimed metal layer; however, item 12 refers to conductive traces which are used for electrical connection of the solder ball pads 13 to the wire leads 14. Col. 9, lines 1-4. Yoon discloses a metal layer 12'. Yoon's metal layer 12', however, is only on a peripheral portion 6 of a circuit pattern tape 10. Accordingly, even Yoon's metal layer 12', is not "mounted on a side of said semiconductor device opposite said dielectric substrate," as recited by amended independent claim 25; nor "attached to a side of said semiconductor wafer opposite said ball grid arrays," as recited by amended independent claim 47. For at least these reasons this rejection should be withdrawn.

Claims 25 and 28-34 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Heo, US Patent No. 6,389,689 ("Heo"). This rejection is respectfully traversed.

Heo does not disclose all limitations of amended independent claim 25. Specifically, Heo fails to disclose a "semiconductor device package" comprising, *inter alia*, "a metal layer having diced edges, said metal layer mounted on a side of said semiconductor device opposite said dielectric substrate." Heo discloses a copper layer 21 (FIG. 6). Heo's metal layer 21 is on a same side of the semiconductor chip 10 as the non-conductive material 22. For at least these reasons, withdrawal of this rejection is respectfully requested.

Claims 40, 41, 43, and 46 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Hideshima et al., US Patent No. 5,143,865 ("Hideshima"). This rejection is respectfully traversed.

Unlike the claimed invention, Hideshima teaches the use of "a solder bump type power bipolar transistor." Col. 4, lines 62-63. Hideshima does not disclose all of the claim limitations recited by amended independent claim 40. Specifically, Hideshima fails to disclose "a ball grid array over said dielectric substrate and on an opposite side of said dielectric substrate than said semiconductor device," as recited by claim 40. Further, Hideshima fails to disclose "at least one first circuit trace on said upper side of said dielectric substrate and connected to a ball pad; at least one second circuit trace on said lower side of said dielectric substrate; and at least one metal-plugged via connecting said at least one first circuit trace to at least one second circuit trace," as also recited by claim 40. Accordingly, Hideshima does not anticipate

amended independent claim 40 or any claims depending therefrom. For at least these reasons, this rejection should be withdrawn.

Claims 47-56 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Horiuchi et al., US Patent No. 6,297,553 ("Horiuchi"). This rejection is respectfully traversed.

Horiuchi does not disclose all limitations of any of amended independent claims 47 and 52. Specifically, Horiuchi fails to disclose "a first metal layer attached to a side of said semiconductor wafer opposite said ball grid arrays," as recited by amended independent claim 47; and "a metal layer attached to the semiconductor device on a side of said semiconductor device opposite said dielectric substrate," as recited by amended independent claim 52. Instead, Horiuchi discloses only connection pads 22 and terminal lands 28. Neither of Horiuchi's connection pads 22 or terminal lands 28 is a metal layer attached to a semiconductor wafer or device, much less attached in the manner recited by claims 47 and/or 52. For at least these reasons, this rejection should be withdrawn.

Claim 26 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Heo in view of Tuckerman et al., US Patent No. 5,134,539 ("Tuckerman"). This rejection is respectfully traversed.

The subject matter of claim 26 would not have been obvious over Heo in view of Tuckerman. Specifically, the Office Action does not establish a *prima facie* case of obviousness, which requires "the prior art reference (or references when combined) must teach or suggest all the claim limitations." M.P.E.P. § 2142. As explained above, Heo does not teach or suggest all of the limitations recited by claim 25 (from which claim 26 depends directly). Tuckerman does not cure the deficiencies of Heo.

Accordingly, neither of the cited references, whether considered alone or in combination, render the claimed invention obvious. For at least these reasons, withdrawal of the rejection of claim 26 is respectfully requested.

Claim 39 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Heo in view of Saitoh et al., US Patent No. 6,175,084 ("Saitoh"). This rejection is respectfully traversed.

The subject matter of claim 39 would not have been obvious over Heo in view of Saitoh. Specifically, the Office Action does not establish a *prima facie* case of obviousness, which requires "the prior art reference (or references when combined) must teach or suggest all the claim limitations." M.P.E.P. § 2142. As explained above, Heo does not teach or suggest all of the limitations recited by claim 25 (from which claim 39 depends directly). Saitoh does not cure the deficiencies of Heo. Accordingly, the cited references, even when considered in combination, do not render the claimed invention obvious. For at least these reasons, withdrawal of the rejection of claim 39 is respectfully requested.

Claims 42 and 45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hideshima in view of Saitoh. This rejection is respectfully traversed.

The subject matter of claims 42 and 45 would not have been obvious over Hideshima in view of Saitoh. Specifically, the Office Action does not establish a *prima facie* case of obviousness, which requires "the prior art reference (or references when combined) must teach or suggest all the claim limitations." M.P.E.P. § 2142. As explained above, Hideshima does not teach or suggest all of the limitations recited by claim 40 (from which claims 42 and 45 depend). Saitoh does not cure the deficiencies of

Hideshima. Accordingly, the cited references, even when considered in combination, do not render the claimed invention obvious. For at least these reasons, withdrawal of the rejection of claims 42 and 45 is respectfully requested.

Claim 44 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Hideshima in view of Magdo et al., US Patent No. 3,918,148 ("Magdo"). This rejection is respectfully traversed.

The subject matter of claim 44 would not have been obvious over Hideshima in view of Magdo. Specifically, the Office Action does not establish a *prima facie* case of obviousness, which requires "the prior art reference (or references when combined) must teach or suggest all the claim limitations." M.P.E.P. § 2142. As explained above, Hideshima does not teach or suggest all of the limitations recited by claim 40 (from which claim 44 depends). Magdo does not cure the deficiencies of Hideshima. Accordingly, the cited references, even when considered in combination, do not render the claimed invention obvious. For at least these reasons, withdrawal of the rejection of claim 44 is respectfully requested.

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In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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